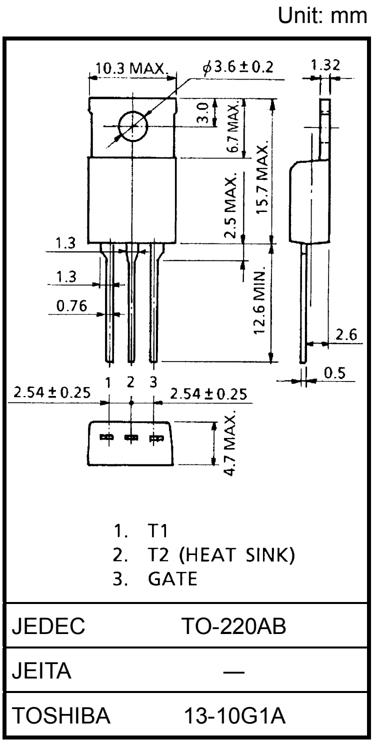
TOSHIBA BI-DIRECTIONAL TRIODE THYRISTOR SILICON PLANAR TYPE

S6903G, S6903J

AC POWER CONTROL APPLICATIONS

Unit: mm

- High Rush Current Capability
  Optimal for controlling actuators where high rush current may flow
  : I_{TRM} = 120A (n = 100k cycle, Tc = 45°C)
- R.M.S On−State Current : $I_{T\,(RMS)}$ = 20A
- Repetitive Peak Off−State Voltage : V_{DRM} = 400V, 600V



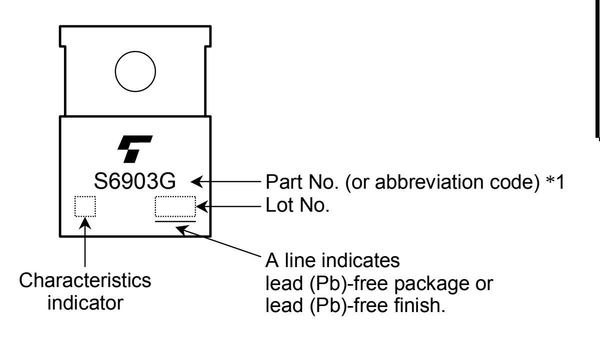
JEDEC	TO-220AB
JEITA	—
TOSHIBA	13-10G1A

Weight: 2.0 g (typ.)

MAXIMUM RATINGS

CHARACTERISTIC		SYMBOL	RATING	UNIT
Repetitive Peak Off−State Voltage	S6903G	V_{DRM}	400	V
	S6903J		600	
R.M.S On−State Current (Full Sine Waveform Tc = 100°C)		$I_{T\,(RMS)}$	20	A
Peak One Cycle Surge On−State Current (Non−Repetitive)		I_{TSM}	180 (50Hz)	A
			200 (60Hz)	
Repetitive Surge On−State Current (Note 1)		I_{TRM}	120	A
I^2t Limit Value		I^2t	167	A^2s
Critical Rate of Rise of On−State Current		di / dt	50	A / μs
Peak Gate Power Dissipation		P_{GM}	5	W
Average Gate Power Dissipation		$P_{G\,(AV)}$	0.5	W
Peak Gate Voltage		V_{GM}	10	V
Peak Gate Current		I_{GM}	2	A
Junction Temperature		T_j	−40~125	°C
Storage Temperature Range		T_{stg}	−40~125	°C

MARKING

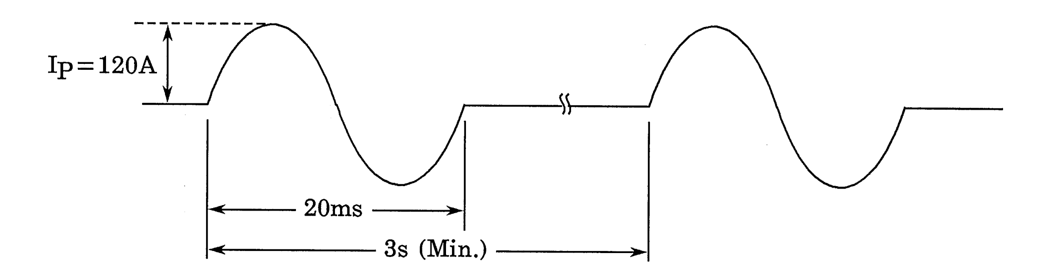


	Part No. (or abbreviation code)	Part No.
*1	S6903G	S6903G
	S6903J	S6903J

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION		MIN	TYP.	MAX	UNIT
Repetitive Peak Off−State Current		I_{DRM}	V_{DRM} = Rated		—	—	20	μA
Gate Trigger Voltage	I	V_{GT}	V_D = 12V, R_L = 20Ω	T2 (+), Gate (+)	—	—	1.5	V
	II			T2 (+), Gate (−)	—	—	1.5	
	III			T2 (−), Gate (−)	—	—	1.5	
	IV			T2 (−), Gate (+)	—	—	—	
Gate Trigger Current	I	I_{GT}	V_D = 12V, R_L = 20Ω	T2 (+), Gate (+)	—	—	30	mA
	II			T2 (+), Gate (−)	—	—	30	
	III			T2 (−), Gate (−)	—	—	30	
	IV			T2 (−), Gate (+)	—	—	—	
Peak On−State Voltage		V_{TM}	I_{TM} = 30A		—	—	1.6	V
Gate Non−Trigger Voltage		V_{GD}	V_D = Rated, Tc = 125°C		0.2	—	—	V
Holding Current		I_H	V_D = 12V, I_{TM} = 2A		—	—	50	mA
Thermal Resistance		$R_{th\ (j-c)}$	Junction to Case, AC		—	—	1.0	°C / W
Critical Rate of Rise of Off−State Voltage at Commutation		$(dv / dt)_c$	V_{DRM} = 400V, T_j = 125°C, (di / dt) c = −8.7A / ms		10	—	—	V /μs

Note 1: Repetitive Surge On−State Current



I_P = 120A (f = 50Hz) at Tc = 45°C

Max. Repetitive Number of cycle n = 100k cycle (Repetitive cycle T = 3s Min.)

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